Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-46. (canceled)

47. (previously presented) A method for the electrophoretic separation of particles, particularly of membrane-adherent macromolecules, the method comprising:

applying the particles to a substrate-supported membrane such that the particles are mobile across a surface of the substrate-supported membrane;

providing an electrical field having a direction that is oriented along the surface across which the particles are mobile; and

performing electrophoresis according to at least one of:

temporarily modifying at least one of the strength and the direction of the electrical field such that a resulting force acts on the particles causing movement among the particles that depends on the length of the particles, and

using a substrate supporting the substrate-supported membrane that has a structured membrane-compatible surface that provides a force acting on the moving particles that depends on the length of the particles.

48. (previously presented) A method according to claim 47, wherein the substrate-supported membrane is a fluid lipid membrane, particularly comprising at least one of the lipids activated by PEG and DAC-Chol lipids.

49. (previously presented) A method according to claim 48, wherein the fluid lipid membrane is a cationic fluid lipid membrane.

50. (previously presented) A method according to claim 48, wherein the fluid lipid membrane includes amphiphilic macromolecules.

51. (previously presented) A method according to claim 48, wherein the fluid lipid membrane includes bilaycrs of charged lipids.

52. (previously presented) A method according to claim 47, wherein the electrical field is a pulsed electrical field.

53. (previously presented) A method according to claim 47, wherein the electrical field is an alternating field on which a time constant field is superimposed.

54. (previously presented) A method according to claim 53, wherein the alternating field and the time constant field are superimposed in a crosswise manner.

55. (previously presented) A method according to claim 47, wherein the structured membrane-compatible surface including ribs, supporting the membrane.

56. (previously presented) A method according to claim 55, wherein the substrate exhibits a periodicity ranging from 2 nm to 200 nm.

57. (previously presented) A method according to claim 55, wherein the ribs have a height in the range of 1 nm to 10 nm.

58. (previously presented) A method according to claim 55, wherein the electrical field is a time constant field having a direction that is substantially parallel to the ribs.

59. (previously presented) A method according to claim 47, wherein said movement is a rotation.

60. (previously presented) A method according to claim 47, wherein:

the substrate includes an exclusion area in which the particles are not mobile; and

the method further comprises collecting the particles at said exclusion area upon providing the electrical field, prior to performing the electrophoresis.

61. (previously presented) A method according to claim 60, wherein:

the substrate-supported membrane is a fluid lipid membrane, particularly comprising at least one of the lipids activated by PEG and DAC-Chol lipids; and

the exclusion area is a non-fluid area of the fluid lipid membrane.

62. (previously presented) A method of observing an electrophoretic separation, comprising:

performing the method for the electrophoretic separation of particles of claim 47;

recording digitized image data of the electrophoretic movement; and

evaluating the recorded image data using a computer.

63. (previously presented) A method according to claim 47, wherein the particles to be separated include at least one of DNA, RNA, DNA-oligomers, RNA-oligomers, and proteins.

64. (previously presented) A method according to claim 47, further comprising providing a pH gradient, wherein the particles migrate according to the pH gradient.

65. (previously presented) A method according to claim 64, wherein the pH gradient is provided parallel to the electrical field.

66. (previously presented) A method according to claim 64, wherein the pH gradient is provided substantially perpendicular to the electrical field.

67. (currently amended) A microchannel electrophoresis chamber, comprising at least one channel having a bottom surface including a substrate-supported membrane, the substrate-supported membrane comprising:

a substrate and a fluid lipid membrane, wherein the fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only at least one of water and a buffer solution.

68. (previously presented) A microchannel electrophoresis chamber according to claim 67, wherein the fluid lipid membrane includes cationic lipids.

69. (previously presented) A microchannel electrophoresis chamber according to claim 67, wherein the fluid lipid membrane includes amphiphilic macromolecules.

70. (previously presented) A microchannel electrophoresis chamber according to claim 67, wherein the fluid lipid membrane includes bilayers of charged lipids.

71. (previously presented) A microchannel electrophoresis chamber according to claim 67, wherein the fluid lipid membrane includes at least one non-fluid area.

72. (previously presented) A microchannel electrophoresis chamber according to claim 67, wherein the substrate includes an optically transparent material.

73. (previously presented) A microchannel electrophoresis chamber according to claim 72, wherein the optically transparent material includes plastic.

74. (previously presented) A microchannel electrophoresis chamber according to claim 73, wherein the plastic includes at least one of PC, PMMA, PS, PE, and plastic formed of cyclic olefins.

75. (previously presented) A microchannel electrophoresis chamber according to claim 72, wherein the optically transparent material includes glass.

76. (previously presented) A microchannel electrophoresis chamber according to claim 67, further comprising an electrode assembly connected to the channel.

77. (previously presented) A microchannel electrophoresis chamber according to claim 76, wherein each channel has a width ranging from 1 μm to 10 mm.

78. (previously presented) A microchannel electrophoresis chamber according to claim 76, wherein each channel has a depth ranging from 10 nm to 20 μm.

79. (previously presented) A microchannel electrophoresis chamber according to claim 76, wherein the at least one channel is a plurality of channels arranged as a two-dimensional matrix.

80. (previously presented) A microchannel electrophoresis chamber according to claim 76, wherein the electrode assembly includes an electrode disposed at each longitudinal end of each said channel.

81. (previously presented) A microchannel electrophoresis chamber according to claim 76, wherein the electrode assembly includes an electrode extending longitudinally in the direction of the channel at each side of each channel.

82. (canceled)

83. (canceled)

84. (canceled)